

The embodiments of the invention in which an exclusive property right or privilege is claimed are defined as follows:

1. A method of picking products in a pick-to-light system, said method comprising:

arranging products in first and second rows of adjacent picking locations wherein the products are available for picking;

5 aligning groups of totes with the picking locations;  
indicating a given tote in the group of totes;  
indicating products to be picked for the given tote;  
picking and placing the indicated products in the given tote; and  
indexing a first group of totes from one of the picking locations to another  
10 picking location in one of the first and second rows when the indicated products are picked for each given tote in the first group of totes.

2. The method according to Claim 1, wherein said aligning groups of totes comprising supporting said groups of totes on conveyors.

3. The method according to Claim 2, wherein said indexing includes automatically driving a selected conveyor of said conveyors, said selected conveyor supporting said first group of totes.

4. The method according to Claim 1, wherein said arranging products comprises supporting products on flow racks, said flow racks each having a product induct side and a product discharge side, said product discharge sides arranged at said picking locations wherein the products flow from said induct sides to said discharge sides to said picking  
5 locations.

5. The method according to Claim 1, wherein said indicating comprises providing lights at each of said picking locations associated with each type of product and actuating at least one of said lights to indicate when a product associated with said at least one light is to be picked for the given tote.

6. The method according to Claim 1, wherein said indicating comprises providing a designated light at each of said picking locations for each type of product and actuating said designated light when a product is to be picked for the given tote.
7. The method according to Claim 1, wherein indicating a given tote comprises providing an indicator for each tote and actuating said indicator to indicate a given tote.
8. The method according to Claim 7, wherein said providing an indicator comprises providing a light.
9. The method according to Claim 7, wherein said providing an indicator comprises providing a light at said picking locations.
10. The method according to Claim 1, wherein said aligning comprises aligning a group of totes with a respective picking location.
11. The method according to Claim 10, further comprising indexing group of totes when the identified products have been picked and placed in each given tote of the groups of totes.
12. A method of picking products in a pick-to-light system, said method comprising:
  - 5 providing products in a first row of picking bays, each of the picking bays having an induct side and a discharge side;
  - 10 providing products in a second row of picking bays spaced from the first row of picking bays, each of the picking bays of the second row having an induct side and a discharge side;
  - 15 forming an aisle between the discharge sides of the first and second rows of picking bays;
  - 20 providing access across the aisle to an operator wherein the operator may move between the discharge sides of the first and second rows of picking bays;
  - 25 aligning a first group of totes with the discharge side of an upstream picking bay in the first row;

aligning a second group of totes with the discharge side of an upstream

15 picking bay in the second row;

indicating a product or products in the upstream picking bay of the first row to be picked by the operator for a tote in the first group of totes;

indicating a product or products in the upstream picking bay of the second row to be picked by the operator for a tote in the second group of totes; and

20 indexing a respective group of totes of said first and second groups of totes to a downstream picking bay in its respective row when the indicated product or products have been picked and placed by the operator wherein the operator may continue to pick at another picking bay.

13. The method according to Claim 11, further comprising indicating a product or products in the downstream picking bay to be picked by the operator for the respective group of totes after the respective group of totes is indexed to the downstream picking bay; and indicating a product to be picked by an operator at the upstream picking bay of the respective 5 row for a third group of totes.

14. The method according to Claim 13, further comprising indexing the respective group of totes and the third group of totes wherein said respective group of totes aligns with a discharge side of a second downstream picking bay of the respective row and the third group of totes aligns with the discharge side of the first downstream picking bay of the respective 5 row when the picking is complete for both the respective group of totes and the third group of totes.

15. The method according to Claim 12, wherein said aligning the first and second groups of totes comprises supporting said groups of totes on first and second conveyors, respectively, adjacent the discharge sides of said picking bays of said first and second rows of picking bays, respectively, and said indexing includes automatically driving a respective 5 conveyor of said conveyors which supports the respective group of totes to thereby index the respective group of totes.

16. The method according to Claim 12, wherein said providing products comprises supporting products on flow racks, said products flowing from said induct sides to said discharge sides.

17. The method according to Claim 12, wherein said indicating comprises providing lights associated with the products, and said indicating further comprises actuating a light to indicate when a product is to be picked.

18. The method according to Claim 17, wherein said indicating comprises providing a light at each of said picking locations for each type of product and actuating a respective light of said lights when a product associated with said respective light is to be picked.

19. The method according to Claim 12, wherein said providing a first group of totes comprises providing a first group of three totes.

20. The method according to Claim 14, wherein said indexing further comprises providing a control system and controlling said indicating with the control system.

21. The method according to Claim 20, wherein said indexing comprises driving the conveyors with the control system.

22. The method according to Claim 21, further comprising detecting when an indicated product has been picked for a given tote with the control system.

23. The method according to Claim 22, wherein said detecting includes a providing an actuator and detecting when said actuator has been actuated to detect when an indicated product has been picked for a given tote.

24. A pick-to-light system comprising:  
means for supporting products in first and second rows and for grouping the products in a plurality of picking locations;

means for aligning a first group of totes adjacent an upstream picking location

5 in said first row;

means for aligning a second group of totes adjacent an upstream picking location in said second row;

means for identifying each tote within said group of totes;

means for indicating which products are to be picked for and placed in a given

10 tote of the group of totes at said first picking locations;

means for indexing said second group of totes from said upstream picking location in said second row;

means for indexing said first group of totes from said upstream picking location in said first row; and

15 a control system for actuating a respective means of said means for indexing when the products for a respective picking location are picked.

25. The pick-to-light system according to Claim 24, wherein said means for supporting comprises a plurality of racks.

26. The pick-to-light system according to Claim 25, wherein said racks comprise flow racks, with each rack having an induct side and discharge side, said means for aligning being adjacent said discharge sides of said flow racks.

27. The pick-to-light system according to Claim 24, wherein said means for aligning said first group of said totes and said means for aligning said second group of totes comprise first and second conveyors, respectively.

28. The pick-to-light system according to Claim 24, wherein said means for indexing comprises selectively driven conveyors.

29. The pick-to-light system according to Claim 24, wherein said means for indicating comprises lights, said control system selectively actuating said lights.

30. A pick-to-light system comprising:  
a plurality of racks supporting groups of products in first and second rows of adjacent picking locations;  
a plurality of totes;  
5 a first conveyor for supporting a first group of said totes adjacent a first picking location of said first row;  
a second conveyor for supporting a second group of said totes adjacent a first picking location of said second row;  
a control system for identifying selected products to be picked for a given tote  
10 and detecting when the selected products are picked for the given tote, and said control system actuating said first conveyor to index said first groups of totes to another picking location in said first row when the selected products of the first picking location in said first row have been picked and placed in each given tote of said first groups of totes and actuating said second conveyor to index said second groups of totes to another picking location in said first row when the selected products of the first picking location in the second row have  
15 been picked and placed in each of the given totes of said second group of totes.

31. The pick-to-light system according to Claim 30, wherein said racks comprise flow racks, with each rack having an induct side and discharge side, said discharge sides comprising said picking locations.

32. The pick-to-light system according to Claim 30, wherein said control system includes indicators, said indicators identifying the selected products.

33. The pick-to-light system according to Claim 32, wherein said indicators include lights for identifying the selected products.

34. The pick-to-light system according to Claim 33, wherein said indicators include displays for identifying the given tote.

35. The pick-to-light system according to Claim 34, wherein each of said totes includes an identifier, said displays for displaying said identifiers.

36. The pick-to-light system according to Claim 32, wherein each of said totes includes an indicator associate therewith for identifying the given tote.

37. The pick-to-light system according to Claim 35, wherein said indicators are provided at said picking locations.

38. The pick-to-light system according to Claim 36, wherein said indicators are provided at said conveyors.

39. The pick-to-light system according to Claim 32, wherein said indicators display a mode of operation for said pick-to-light system.

40. The pick-to-light system according to Claim 30, further comprising operator actuated devices for indicating when a selected product is picked for a given tote, said control system detecting when said operator actuated devices are actuated to determine when the selected product is picked for the given tote.

41. A method of picking products in a pick-to-light system, said method comprising:

providing products in a first row of picking bays, each of the picking bays having an induct side and a discharge side;

5 providing products in a second row of picking bays spaced from the first row of picking bays, each of the picking bays of the second row having an induct side and a discharge side;

forming an aisle between the discharge sides of the first and second rows of picking bays;

10 providing access across the aisle to an operator wherein the operator may move between the discharge sides of the first and second rows of picking bays;

aligning a first tote with the discharge side of a first picking bay in the first row;

15 aligning a second tote with the discharge side of a first picking bay in the second row;

indicating a product or products in the first picking bay of the first row to be picked by the operator for the first tote;

indicating a product or products in the first picking bay of the second row to be picked by the operator for the second tote; and

20 indexing a respective tote of the first and second totes to a second picking bay in a respective row of the first and second rows when the indicated product or products have been picked and placed in the respective tote by the operator wherein the operator may continue to pick at another picking bay.

42. The method according to Claim 41, further comprising indicating a product or products in the second picking bay to be picked by the operator for the respective tote after the respective tote is indexed to the second picking bay; and indicating a product to be picked by an operator at the first picking bay of the respective row for a third tote.

43. The method according to Claim 42, further comprising indexing the respective tote and the third tote wherein said respective totes aligns with a discharge side of a third picking bay of the respective row and the third tote aligns with the discharge side of the second picking bay of the respective row when the picking is complete for both the respective tote and the third tote.

44. The method according to Claim 41, wherein said aligning a first tote and said aligning a second tote comprises supporting said first and second totes on first and second conveyors, respectively, adjacent the discharge sides of said picking bays of said first and second rows of picking bays, respectively, and said indexing includes selectively driving a 5 respective conveyor of said conveyors which supports the respective tote to thereby index the respective tote.

45. The method according to Claim 44, wherein said providing products comprises supporting products on flow racks, said products flowing from said induct sides to said discharge sides.

46. The method according to Claim 45, wherein said indicating comprises providing lights associated with the products, and said indicating further comprises actuating a light to indicate when a product is to be picked.

47. The method according to Claim 46, wherein said indicating comprises providing a light at each of said picking locations for each type of product and actuating a respective light of said lights when a product associated with said respective light is to be picked.

48. The method according to Claim 44, wherein said providing a plurality of totes comprises providing groups of totes, and said aligning comprises aligning a first group of totes of said group of totes adjacent the discharge side of the first row of picking bays and align a second group of totes of said group of totes adjacent the discharge side of the second row of picking bay.

5 49. The method according to Claim 48, wherein said indexing a respective tote comprises indexing a respective group of totes after the indicated products or products for each of the totes in the respective group of totes have been picked.

50. The method according to Claim 41, wherein said indexing further comprises providing a control system and controlling said indicating with said control system.

51. The method according to Claim 50, further comprising detecting when an indicated product has been picked for a given tote with the control system.

52. The method according to Claim 51, wherein said detecting includes a providing an actuator and detecting when said actuator has been actuated to detect when an indicated product has been picked for a given tote.